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IS 6213-11 (1975): Methods of test for pulp, Part 11:  
Determination of acid insoluble ash [CHD 15: Paper and its  
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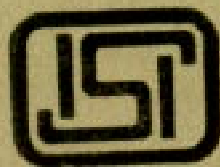
IS : 6213 ( Part XI ) • 1975

*Indian Standard*

**METHODS OF TEST FOR PULP**

**PART XI DETERMINATION OF ACID INSOLUBLE ASH**

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## METHODS OF TEST FOR PULP

## PART XI DETERMINATION OF ACID INSOLUBLE ASH

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**AMENDMENT NO. 1 DECEMBER 2011**  
**TO**  
**IS 6213 (PART 11) : 1975 METHODS OF TEST FOR PULP**  
**PART 11 DETERMINATION OF ACID INSOLUBLE ASH**

*(Page 4, clause 6.1, third line)* — Substitute ‘10 mg’ for ‘1 mg’.

*(Page 4, clause 6.2.2, first line)* — Substitute ‘Whatman filter paper No. 42’ for ‘an ashless filter paper’.

(CHD 15)

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Reprography Unit, BIS, New Delhi, India

*Indian Standard***METHODS OF TEST FOR PULP****PART XI DETERMINATION OF ACID INSOLUBLE ASH****0. FOREWORD**

**0.1** This Indian Standard ( Part XI ) was adopted by the Indian Standards Institution on 30 August 1975, after the draft finalized by the Paper and Its Products ( Excluding Packaging Materials ) Sectional Committee had been approved by the Chemical Division Council.

**0.2** This standard is, mainly based on ISO/R 976-1968 'Pulps—Determination of acid insoluble ash', issued by International Organization for Standardization.

**0.3** As the acid insoluble ash ( mostly silica ) is abrasive in nature and has a deleterious effect on the paper making machinery, it is essential to know its content in the pulp before it is fed to the paper making machine.

**0.4** In reporting the results of a test or analysis made in accordance with this standard, if the final value, observed or calculated, is to be rounded off, it shall be done in accordance with IS : 2-1960\*.

**1. SCOPE**

**1.1** This standard ( Part XI ) prescribes the method for the determination of acid insoluble ash in pulp.

**2. QUALITY OF REAGENTS**

**2.1** Unless otherwise specified, pure chemicals and distilled water ( *see* IS : 1070-1960† ), freshly boiled and cooled, shall be employed in the tests.

NOTE — 'Pure chemicals' shall mean chemicals that do not contain impurities which affect the results of test.

**3. PRINCIPLE OF THE METHOD**

**3.1** The pulp is ashed and the ash is treated with hydrochloric acid. The insoluble residue is filtered, ignited and weighed.

\*Rules for rounding off numerical values ( *revised* ).

†Specification for water, distilled quality ( *revised* ).



## **4. REAGENT**

### **4.1 Dilute Hydrochloric Acid — 6 M ( approx ).**

## **5. APPARATUS**

### **5.1 Platinum Dishes**

### **5.2 Balance — with an accuracy of 0.1 mg.**

## **6. PROCEDURE**

**6.1 Preparation of Test Piece** — Weigh, to the nearest 0.01 g, an amount of air-dry pulp previously torn into pieces of suitable size that will produce at least 1 mg of acid insoluble ash. At the same time weigh out a separate sample for the determination of dry matter content.

### **6.2 Determination**

**6.2.1** Ash the test piece as described in IS : 6213 ( Part VII )-1971\* in a platinum dish, previously ignited and weighed to constant mass. When the dish has attained room temperature, add 5 ml of dilute hydrochloric acid and evaporate to dryness on a steam-bath. Add another portion of 5 ml of dilute hydrochloric acid and evaporate again to dryness. Add 5 ml of dilute hydrochloric acid to the residue and, after heating for a few seconds on a steam-bath, dilute with about 20 ml of water.

**6.2.2** Filter the contents of the dish through an ashless filter paper and wash the dish and filter paper several times with hot water until the filtrate is free from chloride ions. Replace the filter paper containing the insoluble residue in the platinum dish. Heat the dish carefully until the water has evaporated and ash the filter paper over a low flame. When the paper is carbonized, ignite the residue in a muffle furnace at  $575 \pm 25^{\circ}\text{C}$  until free from carbon. Allow to cool in a desiccator and weigh to the nearest 0.1 mg.

## **7. CALCULATION**

**7.1** Carry out two determinations and calculate the results as follows:

$$\text{Acid insoluble ash in milligrams per kilogram} = \frac{a \times 1\,000}{m}$$

where

$a$  = mass in mg of insoluble residue, and

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\*Methods of test for pulps: Part VII Ash content in pulp.

$m$  = the mass of pulp in milligrams per kilogram calculated on an oven-dry basis.

Report the result as the mean of the two determinations to the nearest 5 mg per kilogram ( 5 parts per million ).

## **8. TEST REPORT**

**8.1** The test report should state the results obtained and, moreover, indicate all the conditions of the test, any details of procedure regarded as optional or not laid down in this standard and any incidents that may have affected the results.

# INDIAN STANDARDS

## ON

### METHODS OF TEST FOR PULP, PAPER AND ALLIED PRODUCTS

#### IS :

- 1060 (Part I)-1966 Methods of sampling and test for paper and allied products:  
Part I (*revised*)
- 1060 (Part II)-1960 Methods of sampling and test for paper and allied products:  
Part II
- 1060 (Part III)-1969 Methods of sampling and test for paper and allied products:  
Part III
- 2188-1962 Methods of test for paper for electrical purposes
- 4006 (Part I)-1966 Methods of test for paper and pulp based packaging materials:  
Part I
- 4006 (Part II)-1972 Methods of test for paper and pulp based packaging materials:  
Part II
- 5285-1969 Methods of test for fibre analysis of paper and board
- 6213 (Part I)-1971 Methods of test for pulp : Part I Water solubility of pulp
- 6213 (Part II)-1971 Methods of test for pulp : Part II Determination of freeness of  
pulp
- 6213 (Part III)-1971 Methods of test for pulp : Part III Determination of alpha, beta,  
and gamma cellulose in pulp
- 6213 (Part IV)-1971 Methods of test for pulp : Part IV Determination of viscosity of  
pulp
- 6213 (Part V)-1971 Methods of test for pulp : Part V Solubility of pulp in one percent  
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- 6213 (Part VI)-1971 Methods of test for pulp : Part VI Copper number of pulp
- 6213 (Part VII)-1971 Methods of test for pulp : Part VII Ash content in pulp
- 6213 (Part VIII)-1973 Methods of test for pulp : Part VIII Beating, sheet making,  
preparation of hand sheets and testing
- 6213 (Part IX)-1973 Methods of test for pulp : Part IX Bleach requirements and  
preparation of hand sheets for optical tests of pulp
- 6213 (Part X)-1975 Methods of test for pulp : Part X Determination of the *kappa*  
number
- 6213 (Part XI)-1975 Methods of test for pulp : Part XI Determination of acid insoluble  
ash
- 6213 (Part XII)-1975 Methods of test for pulp : Part XII Determination of calcium  
content
- 6213 (Part XIII)-1975 Methods of test for pulp : Part XIII Determination of copper
- 6213 (Part XIV)-1975 Methods of test for pulp : Part XIV Determination of iron
- 6213 (Part XV)-1975 Methods of test for pulp : Part XV Determination of  
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